

MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
Department of Computer Science

Computer Science 6785 – Information Visualization (Directed Readings)  
Fall Semester 2011

Instructor: **Dr. Orland Hoerber**  
Meetings: **M 2:30 – 3:30 (ER-6037)**  
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Office Hours: **T/Th 2:30 PM – 4:30 PM**  
**(other times by appointment only)**

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### Course Objectives

Information Visualization focuses on the design, development, and study of interactive visualization techniques for the analysis, comprehension, exploration, and explanation of large collections of abstract information. Topics to be covered include fundamental information visualization techniques, features of human vision and visual attention, evaluation methods for information visualization systems, and a survey of the latest research contributions to the field of information visualization.

### Textbook

Ware, C., Information Visualization: Perception for Design, 2<sup>nd</sup> Edition, Morgan Kaufmann, 2004.

### Evaluation

The final grade in the course will be determined as follows:

Mini Survey Paper	Oct 31	30%
Survey Paper (core research area)	Dec 15	60%
Presentations	Dec 1	10%
<b>Total</b>		<b>100%</b>

### Format

As a directed readings course, instead of regularly scheduled lectures we will have weekly meetings (M 2:30 – 3:30, ER-6037). The goal of these meetings will be to briefly discuss the readings topics, course requirements, and other related topics.

## Topics & Readings

(\*) indicates required readings

- **The Science of Information Visualization (\*)**
  - Ware, Chapter 1
  - Fallman, 2003 [3]
  - Van Wijk, 2005 [26]
  - Fekete et al., 2008 [4]
- **Taxonomies of InfoVis (\*)**
  - Shneiderman, 1996 [22]
  - Tory & Möller, 2004 [25]
  - Heer et al, 2010 [8]
- **Colour Theory (\*)**
  - Ware, Chapters 3 & 4
  - Stone, 2005 [24]
- **Location, Shape, Size, & Texture (\*)**
  - Ware, Chapters 5 & 6
  - Mackinlay, 1987 [17]
- **Space Perception (\*)**
  - Ware, Chapter 8
- **Evaluating InfoVis Systems (\*)**
  - Carpendale, 2008 [2]
  - Hoeber, 2009 [11]
  - Plaisant, 2004 [21]
- **High Dimensional InfoVis**
  - Keim, 2001 [12]
  - Fua et al., 1999 [5]
  - Sprenger et al., 2000 [23]
- **Time-Series InfoVis**
  - Müller & Schumann, 2003 [18]
  - Harve et al., 2002 [6]
- **Tree-Based InfoVis**
  - Lamping & Rao, 1986 [15]
  - Zhao et al., 2005 [29]
- **Graph-Based InfoVis**
  - Herman et al., 2000 [10]
  - Heer & boyd, 2005 [9]
- **Geography-Based InfoVis**
  - Ware, Chapter 7.5
  - Andrienko et al., 2007 [1]
  - Wood et al., 2007 [28]
  - Lundblad et al., 2009 [16]
- **Text-Based InfoVis**
  - Wise et al., 1995 [27]
  - Hearst, 1995 [7]
  - Paek et al., 2004 [20]
- **Visual Analytics**
  - Keim et al., 2006 [14]
  - Keim et al., 2008 [13]
- **Communicating InfoVis Results (\*)**
  - Munzner, 2008 [19]

## Grades

All grades will be assigned according to the 2011/2012 University Calendar (Section 5.8 under University Regulations).

- "A" (80 – 100%) indicates excellent performance with clear evidence of:
  - comprehensive knowledge of the subject matter and principles treated in the course,
  - a high degree of originality and independence of thought,
  - a superior ability to organize and analyze ideas, and
  - an outstanding ability to communicate.
- "B" (65 – 79%) indicates good performance with evidence of:
  - substantial knowledge of the subject matter,
  - a moderate degree of originality and independence of thought,
  - a good ability to organize and analyze ideas, and
  - an ability to communicate clearly and fluently.
- "C" (55 – 64%) indicates satisfactory performance with evidence of:
  - an acceptable grasp of the subject matter,
  - some ability to organize and analyze ideas, and
  - an ability to communicate adequately.
- "D" (50 – 54%) indicates minimally acceptable performance with evidence of:
  - rudimentary knowledge of the subject matter,
  - some evidence that organizational and analytical skills have been developed, but with significant weaknesses in some areas, and
  - a significant weakness in the ability to communicate.
- "F" (below 50%) indicates failing performance with evidence of:
  - an inadequate knowledge of the subject matter,
  - failure to complete required work,
  - an inability to organize and analyze ideas, and
  - an inability to communicate.